

Fort Carson 2005 Sustainability Progress Report



Sustain the Mission,
Secure the future

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Soldier's Creed

I am an American
Soldier.

I am a Warrior and a
member of a team.

I serve the people of
the United States and
live the Army Values.

I will always place the mission first.

I will never accept defeat.

I will never quit.

I will never leave a fallen comrade.

I am disciplined, physically and mentally
tough, trained and proficient in my warrior
tasks and drills. I always maintain my arms,
my equipment and myself.

I am an expert and I am a professional.
I stand ready to deploy, engage, and destroy
the enemies of the United States of America
in close combat.

I am a guardian of freedom and the American
way of life.

I am an American Soldier.

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What is in this Report

The 2005 Fort Carson Sustainability Progress Report provides a snapshot of where we are on our path to sustainability. Initiatives that address our 25-year goals are presented, including information on the challenges we face in accomplishing the goals and future initiatives.

For more information:

Fort Carson's SEMS website – <http://sems.carson.army.mil>

SEMS Training Hotline – (719) 526-4340

The Army's sustainability website – <http://www.sustainability.army.mil/index.htm>

Our Sustainability Goals

1. Sustain all facility and mobility systems from renewable sources, and reduce the total water purchased from outside sources by 75%.
2. Reduce automobile dependency and provide balanced land use and transportation systems.
3. Improve communication to foster understanding and attain a "Community of One."
4. Enhance partnering to collaboratively develop, integrate, and implement regional sustainability.
5. Reduce the total weight of hazardous air pollutant emissions to zero.
6. Further integrate sustainability principles into the Fort Carson land use planning, Real Property Master Planning, and Military Construction, Army (MCA) programming processes.
7. All applicable facilities at Fort Carson will be high performance buildings that meet or surpass the Platinum Standard of SPiRiT or LEED.
8. Key stakeholder groups are trained, compliant and motivated toward sustainability principles.
9. All Department of Defense (DOD) and Fort Carson procurement actions support sustainability.
10. The total weight of solid and hazardous waste disposed of is reduced to zero.
11. Training Ranges (land and associated air space used for live fire ranges, maneuver, testing and development designated for Military Operations in Urban Terrain training) capable of supporting current and future military training to standard.
12. Advance a sustainable mission and Fort Carson by adopting a Sustainability and Environmental Management System (SEMS) and by imparting (passing on) a personal commitment and enthusiasm for sustainability.

Goal 1: Sustain all facility and mobility systems from renewable sources, and reduce the total water purchased from outside sources by 75%.

Challenges: * Increased utility demands with new Soldiers and families coming to Fort Carson and becoming part of the local economy. * Reluctance to try renewable energy sources over traditional sources (i.e., fossil fuels, coal and natural gas).



Biomass photo courtesy of the National Renewable Energy Laboratory

Accomplishments:

Energy costs can hamper military training capabilities and burden already strained natural resources. Fort Carson is committed to wise resource use by promoting renewable energy initiatives and tracking and practicing water conservation.

Renewable Energy Certificates

Fort Carson partnered with eight other government agencies and signed a landmark agreement July 27, 2005 with the Western Area Power Authority, an agency of the U.S. Department of Energy, to purchase renewable energy certificates (REC). The credits will come from a combination of biomass (76 percent) that will come from sawmills in California and wind farms (24 percent) located in California and Nebraska.

Fort Carson will purchase the certificates at about the same cost as current electricity rates. At approximately \$1 per million watt-hours, the RECs purchased will equate to approximately 2,450 hours of renewable energy produced per year or 28 percent of the energy purchased by Fort Carson.

Buying the credits does not mean Fort Carson uses the actual renewable energy produced. Instead, they give Fort Carson credit for

supporting renewable energy production and the companies producing the energy. The most commonly used energy sources (i.e., coal, oil and natural gas) are limited in supply. In contrast, renewable energy sources (i.e., wind, sun, biomass) are created daily, offering a limitless supply. By supporting renewable energy use, Fort Carson reduces the nation's dependency on foreign energy sources thereby helping to improve our national security and avoid rising costs.

Alternative Fuel Vehicles

The use of alternative fuel vehicles (AFVs) on Fort Carson has been underway for several years at its Transportation Motor Pool (TMP). Administrative fleet vehicles fueled by compressed natural gas, ethanol and combination fuels have been integrated into transportation operations. Fort Carson's TMP fleet consists of 190 AFVs out of the 396 vehicle fleet, or 47 percent.

In 2004, the TMP leased five electric hybrids, which run on battery power and gasoline, for the fleet. The electric hybrid battery pack is designed to last up to 10 years and does not require charging. One tank of gasoline can fuel the hybrid for up to 650 miles.

A pilot biodiesel fuel initiative in 2004 took the use of AFVs a step

further on Fort Carson. Seven vehicles - pick up trucks and blazers - were upgraded to run on biodiesel. The pilot project included the purchase of 1,000 gallons of B20 biodiesel (20 percent vegetable oil and 80 percent diesel).

The biodiesel project to date is proving that the vehicles are performing well with the lighter B20 fuel, especially during winter when engines warm up faster. The vehicles also get the same travel fuel efficiency as straight diesel vehicles with reduced emissions.

Irrigation System Rain Sensors

One initiative underway by the DPW is including rain sensors on irrigation systems. The irrigation system controllers automatically prevent the sprinkler systems from turning on when there is enough rainfall. The rain sensors have been installed in DPW irrigation systems, but are also being considered for the Fort Carson golf course and housing area irrigation systems.

It is anticipated that the rain sensors installed to date will save 20 percent of water used in these high-use areas, or 37 million gallons a year, which equates to an annual cost savings of \$80,000.

Future Goal Initiatives:

✚ Prepare an Energy Management Plan, which will outline Fort Carson's energy strategy, provide a baseline, identify renewable energy initiatives and document the status of future energy projects.

✚ Complete funded energy efficiency improvements and water reduction projects at a major industrial facility, Bldg. 8000 (replace once-through water-cooled air compressor with a closed-loop system).

✚ Install a solar collector wall on Bldg. 8030 (a large motorpool) to pre-heat the heating system intake air with solar energy thereby reducing natural gas consumption.

Goal 2: Reduce automobile dependency and provide balanced land use and transportation systems.

Challenges: * Obtaining funds for a more comprehensive mass transit system on Fort Carson * Increase number of walking, jogging and biking trails.



Traffic photo courtesy of the U.S. E.P.A.

comprehensive mass transit operation could emerge.

Community Viz

Community Viz, a three dimensional, geographic information system (GIS)-based tool is being used to visualize future development at Fort Carson. It will prioritize development siting according to sustainability impacts. For example, it will display future mass transit stops on the Installation in addition to new facilities and road improvements.

Future Goal Initiatives:

- ✚ Implement sustainable transportation recommendations from current traffic study.
- ✚ Integrate goal-supporting qualities in to Community Viz and use it in all future development siting.

Accomplishments:

Fort Carson has long battled issues of traffic congestion coming on and going off the Installation, including during morning physical training, lunch and at the end of the work day. The volume of traffic will increase with the anticipated arrival of more troops.

Traffic Study

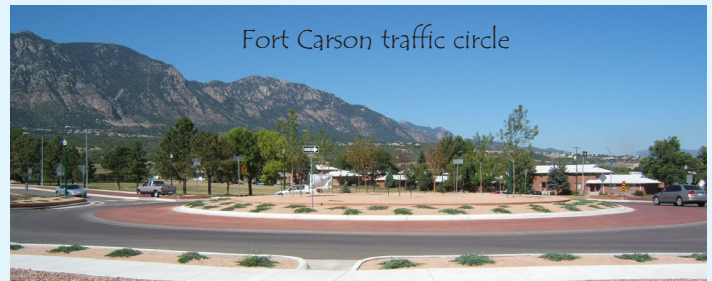
Fort Carson recently conducted a comprehensive traffic study in order to develop recommendations for future transportation improvements on the Installation. A main focus of this study was to develop alternative transportation options and reduce reliance on automobiles. As funding is provided, increased walking routes, bicycle trails and more

efficient mass transportation operations will appear on Fort Carson.

These efforts integrate with the master planning goal and planning principles that Fort Carson recently adopted. (See Goal 6, Page 6)

Colorado Springs Transit

Fort Carson is working closely with Colorado Springs Transit to improve bus mass transit on the Installation. In the short term, increased bus stops are planned. In the long term, a more



Fort Carson traffic circle

Goal 3: Improve communication to foster understanding and attain a "Community of One."

Challenges: * Installation security requirements create perception of access issues to Fort Carson. * Deployments disrupt and destabilize internal and external Fort Carson communities, especially Soldiers and their families.



Fort Carson National Night Out

societal well-being, a key component of sustainability.

While Fort Carson is a secure post, multiple programs are underway and events held to make the fenceline around us as transparent as possible to forge a "Community of One" in understanding.

Community Events

The Fort Carson Public Affairs Office (PAO) and various directorates on the Installation actively engage external communities to participate in Installation events.

Accomplishments:

For sustainability to be successful, Fort Carson and our neighboring communities must

have healthy relationships. Goal 3 promotes communication between the Installation and the surrounding communities to eliminate any perceived barriers and further

From August 2004 to August 2005,

PAO supported 192 events, which included organizing performances by the Fort Carson singing group Harmony in Motion, scheduling the Mounted Color Guard, hosting tours for such notables as Sen. Wayne Allard and Rep. Joel Hefley and facilitating off post speaking engagements.

The DECAM hosted a tour for a group of state legislators from the National Conference of State Legislatures, June 14, 2005 to share experiences and highlight efforts to offset encroachment from impacting Fort Carson's mission through the Army Compatible Use Buffer (ACUB) program.

Earth/Arbor Day 2005

Students of all four Fort Carson schools, along with Hoehne School near Piñon Canyon Maneuver Site (PCMS) in southern Colorado,

participated in Earth/Arbor Day 2005 events.

More than 4,300 students were involved in the events ranging from a Grocery Bag Art Contest, Essay Contest, volunteers reading Dr. Seuss' The Lorax to students and Educational Fairs. Students also planted over 120 trees and shrubs.

Fort Carson celebrates Arbor Day in conjunction with Earth Day through its tree planting events. This is the 18th consecutive year the National Arbor Day Foundation designated Fort Carson as Tree City USA.

In addition to supporting Earth Day events, the DECAM wildlife staff offer wildlife education classes to schools and other groups. To date, the staff has given presentations to 555 students and 120 adults.

Future Goal Initiative:

✚ Design and build a Fort Carson Museum outside the main gate of the Installation. The Mountain Post Historical Center Board, a non-profit community board, will provide a centralized historical resource for Fort Carson and the surrounding community. The public spaces of the facility will depict and interpret Fort Carson military history.

Additionally, exhibits will highlight regional natural and cultural history to include environmental and sustainability issues.

The 30,000+ square foot museum will be south of Kit Carson Memorial Park at Gate 1, outside the perimeter fence with ground-breaking tentatively scheduled for early 2006.

Goal 4: Enhance partnering to collaboratively develop, integrate and implement regional sustainability.

Challenges: ✱ Effective sustainability means inclusive sustainability. ✱ Fort Carson and regional neighbors must maintain support and momentum for sustainability toward common goals.

Accomplishments:

Partnering to ensure sustainability is a success across the region is an innate part of the concept of sustainability itself. Combining regional resources and expertise is critical.

Indicators Project

Fort Carson is partnering with seven local governments, the Pikes Peak Area Council of Governments, State of the Rockies Project of Colorado College and Pikes Peak United Way in the Pikes Peak Sustainability Indicators Project. This partnership is exploring the

establishment of a long-term program for the region to create indicators of its progress toward its own and Fort Carson's goals for quality of life and sustainable management.

In 2005, there have been 28 indicators meetings held for four groups: society, economy, well-being and nature. The groups measure regional concerns such as the availability of health care, impacts of urban sprawl, viability of small businesses, affordability of participating in cultural events and satisfaction with government performance.

Garrison Commander's Sustainability Breakfasts

Attainment of Fort Carson's sustainability goals is largely dependent on cooperation from the surrounding community and state of Colorado. Beginning in July 2005, COL Michael Resty, the Fort Carson Garrison Commander, supported by the Fort Carson Sustainability Team, began hosting monthly working breakfast meetings with community stakeholders to review progress on the goals.

The purpose of the workshops is to involve external stakeholders and make them aware of current and potential Fort Carson strategic and sustainability initiatives. The breakfasts encourage collaboration in achieving the goals and establishing stakeholder sustainability plans.

A meeting is held for each goal and proponents provide a brief overview of the status of related sustainability or strategic initiatives.

The first breakfast focused on the energy and water goal; the August 2005 breakfast on smart growth planning for Fort Carson's expansion and the September 2005 breakfast on transportation. The

October 2005 event focused on the Pikes Peak Sustainability Indicators Project Report. The report will be shared at the conference with key governmental and supporting organizations.

Future Goal Initiatives:

- Future Garrison Commander's breakfast meetings will focus on the remaining nine goals.
- Work with regional governments to encourage adopting sustainability indicators.

Goal 5: The total weight of hazardous air pollutant (HAP) emissions is reduced to zero.

Challenges: * Trust and willingness to try alternate products with less HAPs content. * Trial and error process to test effectiveness of product substitutions is time consuming.



Accomplishments:

Fort Carson is tackling the issue of reducing HAPs by monitoring the emissions of activities, promoting product substitutions for less harmful chemicals (with equal or improved performance) and implementing initiatives that use best management practices. Several projects have yielded positive results in improving local air quality and keeping the Installation below critical thresholds.

Paint Booth Operations

Military vehicles are painted with chemical agent resistant coating (CARC) to defeat any potential nuclear, biological or chemical agent threat to vehicle occupants. As part of Fort Carson's pollution prevention, hazardous waste and air quality efforts, the Directorate of Logistics (DOL) converted to a zero-HAP CARC paint in early 2004. The new paint virtually eliminates the HAPs from the painting process and also reduces volatile organic compounds (organic gases) emissions. From 2003 to 2004, HAPs emissions were

decreased almost 100 percent and VOCs were reduced by 59 percent due to the CARC paint conversion at the paint booth.

Road Striping

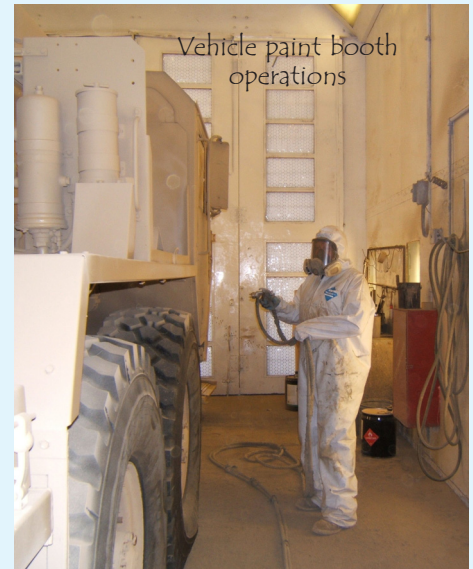
Outdoor painting activities also emit HAPs into the surrounding air. The DPW traffic striping operations produced 4.18 tons of HAPs in 2003. In 2004, the DPW began using a waterborne traffic paint. Using the same amount of paint, this substitution resulted in HAPs reduction of over 3.5 tons from 2003 to 2004. Based on an overall comparison of 2004 to 2003, HAPs emissions were reduced by 19 percent, primarily due to changing the type of paint used for road striping.

Air initiatives have faced some trial and error challenges. In the case of paint striping, the waterborne paint replacement did not fare well in high-volume traffic areas. Due to safety and economic issues, a solvent-based paint is being used where there is a high volume of traffic and crosswalks. It still has lower HAPs than the

type of paint used in 2003 for such operations.

Future Goal Initiatives:

- Work with the DPW, DOL and outside organizations to increase the use of alternative, cleaner fuels on post to help decrease air emissions and decrease equipment maintenance and operating costs.
- Encourage the use of new paint application equipment at the Bldg. 8000 paint booth to increase painting transfer efficiencies and decrease paint waste in the form of overspray.
- Work with U.S. Army Tank-automotive and Armaments Command (TACOM), DOL and paint suppliers to explore the formulation of conventional paints to reduce HAPs further.
- Work with the Army and Air Force Exchange Service (AAFES) to install Stage II vapor recovery systems on gasoline dispensing systems at fuel stations.



Goal 6: Further integrate sustainability principles into the Fort Carson land use planning, Real Property Master Planning and Military Construction, Army (MCA) programming processes.

Challenges: * Obtaining increased funding for planning and studies that are needed to support master planning efforts.
* Using 'life cycle' costing instead of 'first cost' in all development decisions.

Accomplishments:

With an influx of Soldiers and families anticipated for Fort Carson, smart growth planning is essential. Fort Carson is looking further into the future to ensure that current planning can support the land use needs of the future.

Smart Growth Principles

Fort Carson has adopted 10 development principles with associated criteria to use in all future facility location decisions. These 10 principles and criteria have been briefed to numerous stakeholders, both on and off Fort Carson. The principles align with basic smart growth and sustainability strategies. They support training Soldiers and units

while developing strong communities and protecting the environment. These principles will help Fort Carson grow in a way that conserves resources for the future.

Community Viz

Master planning at Fort Carson is done using a software tool called 'Community Viz' (See Goal 2, Page 3) to assist decision makers in visualizing potential future facility



Headquarters Building plan

locations. Community Viz will also help Fort Carson planners and decision makers understand how well development criteria are being met in order to determine the optimal location for a new facility when compared against several options.

Support Staff Increase

The DPW Master Planning staff has been increased to better help coordinate master planning on Fort Carson with the local communities.

Future Goal Initiatives:

- Continue to update Fort Carson's Installation Design Guide (IDG) by incorporating sustainable business practices and requirements into the document.
- Continue to use sustainability principles and criteria to guide all future planning on Fort Carson.
- Export Fort Carson's development principles and master planning approach to other installations across the Army.
- Gain Army's buy in and funding to support life cycle cost decisions in facility and infrastructure development at Fort Carson, instead of first cost decisions that have been the norm in the past.

Goal 7: All applicable facilities at Fort Carson will be high performance buildings that meet or surpass the Platinum Standard of the Sustainable Project Rating Tool (SPiRiT) or Leadership in Energy and Environmental Design (LEED) rating.

Challenges: * Developing a life-cycle cost approach that is consistently funded by the Army instead of the first cost approach and funding used today.

Accomplishments:

Sustainable construction reduces energy costs and provides opportunities to reuse materials

otherwise destined for a landfill. Smart building designs incorporate technologies for healthier work environments while maintaining aesthetics and efficiency.



Golf course clubhouse

Golf Course Club House

All major new construction projects at Fort Carson, including the new golf course club house completed in March 2005, are designed and constructed to the Gold SPiRiT standard. The following are some of the "green" features included in the construction of the facility:

- The old golf course clubhouse was deconstructed with over 70 percent of the materials being reused or recycled.
- The new building is closer to Titus Boulevard, which minimized the distance that utilities needed to be run as well as requirements for new utilities infrastructure.

✚ The design employs clerestory windows as well as exterior sun shading elements and overhangs in order to reduce energy costs.

✚ The design employs strategies, materials and landscaping to aid in reducing heat absorption by exterior materials.

✚ Surfaces, furnishings and equipment selected are appropriately durable, according to life-cycle cost analysis.

✚ All heat (gas) furnaces have an annual fuel use efficiency rating of over 90 percent.

Army Barracks

An on-going construction project, which will be rated a Gold facility, is the new barracks located adjacent to Fort Carson's hospital. Several features in the design of the facility make it more sustainable than past construction.

The facility was strategically sited next to the hospital, as it will provide living quarters for Soldiers who work in the hospital.

The facility is oriented to maximize solar gain and to effectively use day lighting to reduce energy use.

Water use will be reduced through low-flow fixtures, drip irrigation and xeriscaping. Active solar panels are being used for area lighting and both recycled materials and local materials are being used. These are just a few examples of the sustainable features incorporated in the barracks.



Fort Carson MEDDAC Barracks graphic courtesy of the U.S. Army Corps of Engineers

Future Goal Initiatives:

✚ Improve facility planning, design and construction processes to ensure all types of construction on Fort Carson (new construction, renovation, maintenance and repair) are executed using sustainable principles.

✚ Integrate sustainability in to all future facility planning documents by focusing on life-cycle costing instead of first cost criteria.

Goal 8: Key stakeholder groups are trained, compliant and motivated toward sustainability principles.

Challenge: ✱ The transient nature of military life with Soldiers deploying out of country and moving from one installation to another.

The first step in achieving any goal is education. All members of the community, whether proponent or stakeholder, have an impact on the success or failure of sustainability goals and therefore, must be trained. The ultimate goal is to ensure that sustainability becomes an every day part of life and the work environment for the Fort Carson community.

SEMS Awareness Training

The intent of this goal is to train and educate people, on and off post to ensure success of Fort Carson and community sustainability goals and initiatives. Through education, individuals and organizations will begin to think about how their

actions impact the region and what changes they can make to reduce the negative and increase the positive impacts.

Training was one important component to implementing Fort Carson's SEMS-related Goal 12. Fort Carson has been aggressively scheduling on-site classroom training as well as facilitating computer-based training.

Over 90 percent of all those who live and work at Fort Carson have participated in training on sustainability as it relates to the Installation, the Army, the region and the world. The training will be provided throughout the year for

new Soldiers, employees and interested community members.

A tool to support and ensure achievement of sustainability goals, (including environmental performance), the SEMS will only be successful if supported by everyone on the Installation and even some critical organizations off post. For example, the SEMS should support the Fort Carson and community goal of sustainable procurement. To achieve this, all purchasers on the Installation, as well as service providers off the Installation, must be aware of the SEMS and how it affects their work.

Regional Partnerships

A region-wide partnership, the Pikes Peak Sustainable Indicators Project (See Goal 4, Page 4) was launched with several presentations about sustainability in general and how performance indicators relate to sustainable living.



provides updates on regional sustainability efforts, networking opportunities to help establish and strengthen relationships, educational and motivational speakers and focused workshops designed to teach and encourage sharing.

The project continued with regular meetings attended by Fort Carson and regional stakeholders. The meetings provided attendees with a better understanding of regional issues, relationships between the issues and the organizations and how we make improvements.

Annual Fort Carson Community Sustainability Conference

The annual sustainability conference is an event focused on sustainability awareness, education and inspiration. The conference

Community Sustainability Presentations

Fort Carson also interacts with the community and educates it about sustainability principles through speaking engagements. A variety of presentations have been made locally, state wide and nationally. For example, an audience at the Joint Services Environmental Management Conference, in Tampa, Fla., received a presentation on Fort Carson's SEMS aspects and impacts process. Information on

Fort Carson's sustainable building and deconstruction projects was presented at the Society of American Military Engineers Conference in Denver.

Fort Carson continues to actively pursue opportunities to express its commitment to sustainable living and share sustainability stories that include both successes and challenges.

Future Goal Initiative:

✚ Implement mandatory SEMS Competence Training for each military unit/activity, civilian directorate, contractor and tenant organization. The objective of the training will be to review SEMS Awareness Training topics in depth for improved application of sustainability and the management system on the job.

Goal 9: All DOD and Fort Carson procurement actions support sustainability.

Challenges: ✱ Ensuring that buyers have tools and knowledge to make informed decisions that consider sustainability impacts. ✱ An ample market of competitive sellers and manufacturers offering products and services that consider full life-cycle impacts. ✱ Lack of purchase tracking.

Accomplishments:

Purchasing recycled-content goods, called affirmative procurement, has been a long-standing government policy. Government affirmative procurement began with passage of the 1976 Resource and Conservation Recovery Act, which required the U.S. EPA to publish guidelines for affirmative procurement and procuring agencies to develop corresponding programs.

Fort Carson is making strides in furthering affirmative procurement

by ensuring it is also sustainable procurement.

Procurement Training

Fort Carson is addressing this goal through on-going sustainability training for its employees and Soldiers, to be completed in 2005. The Installation is developing a specific plan for achieving this goal, coordinated with local chambers of commerce, Fort Carson's Directorate of Contracting (DOC) and economic development and sustainability organizations in the region.

The 2004 Community Sustainability Conference included a workshop on the movement by Fort Carson, the DOD and businesses and governments in the United States and around the world toward sustainable procurement.

Through its annual conference and speaking engagements, Fort Carson will continue to train local businesses and Fort Carson purchasers.

Procurement plans will also be coordinated with Fort Carson's zero-waste strategy, since the cost-effectiveness of reuse or recycling depends partly on purchasing products easy to reuse or recycle.

Future Goal Initiative:

✚ Work with the Fort Carson DOC to ensure new employee and contractor contracts include language requiring SEMS awareness training that aligns with Fort Carson's sustainability goals.

Goal 10: The total weight of solid and hazardous waste disposed of is reduced to zero by 2027.

Challenge: * Educating an ever changing population to reduce solid waste through recycling and hazardous waste through product substitutions.



reduce disposal quantities by approximately 85 percent.

The cost savings for this initiative is anticipated at \$30,000 a year from disposal avoidance and purchasing less new solvent.

Recycling Solid Waste

From FY04 to FY05, Fort Carson increased recycling of commodities collected (e.g. plastic, brass, paper, cardboard and aluminum) by 21 percent, from 3,222 tons to 3,895 tons.

Future Goal Initiatives:

- Investigate the recycling of garnet and plastic bead blast media used at Bldg. 8000 to remove paint from military vehicles and other metal machinery. Recycling the spent bead blast media would eliminate disposing of one of the largest waste streams on the Installation.

- Expand the contract with a local company to capture and recycle used antifreeze at more locations.

- Promote Installation-wide recycling by increasing the number of collection containers at barracks, offices and motorpools.

Accomplishments:

What to do with growing populations and growing quantities of waste is not an issue unique to Fort Carson. Landfills consume land space and over time can create pollution. Innovation and education are required to get people to create less waste.

Deconstruction

Deconstruction was first piloted by the Fort Carson DPW and DECAM during the summer of 2004. Three World War II-era buildings were deconstructed to determine if the process was cost-effective when compared to traditional demolition.

The results were positive enough that deconstruction is now being used on other suitable buildings slated for removal. The most recent facility deconstructed on Fort Carson was the golf course clubhouse, Bldg. 7800, which was taken down in May 2005.

During deconstruction, as much material as possible was recovered for recycling or reuse. The initial goal for the facility deconstruction was for at least 75 percent of the concrete removed to be diverted from landfill disposal, and at least 50 percent of the usable wood and other non-concrete materials to be saved for reuse.

After project completion, 88 percent of the concrete was recycled and 85 percent of the other harvestable materials (i.e. steel, windows, wiring, lighting, ceiling tiles and mechanical equipment) were salvaged. More than 670 tons of material was diverted from going to a landfill.

Fort Carson began using deconstruction in an effort to promote reuse/recycling practices and support sustainability goals, as well as Army-wide efforts to reduce solid waste.

Paint Gun Cleaning Solvent Recycling

Fort Carson installed a paint gun cleaner and minimizer at the Bldg. 8000 paint booth to reclaim cleaning solvents and reduce the disposal quantities of solvent.

The solvent was the second largest hazardous waste stream by weight on the Installation and now has been significantly reduced. In 2003, 1,500 gallons of solvent were purchased. It is anticipated that recycling the solvent will



Goal 11: Training Ranges (land and associated air space used for live fire ranges, maneuver, testing and urban development designated for Military Operations in Urban Terrain training) capable of supporting current and future military training to standard.



Challenges: * Gaining the necessary funding and support for initiatives, such as the Army Compatible Use Buffer (ACUB), to offset impact of development. * Working with community land use planners to ensure they understand our military mission.

Accomplishments:

Problems associated with encroachment impact many installations. As land outside of Fort Carson boundaries continues to develop, the potential for conflict related to our training grows.

ACUB

Fort Carson and regional partners have been working together since 2001 to conserve natural resources while simultaneously meeting Fort Carson's military mission. The major tool being used is the ACUB program to purchase conservation easements from willing sellers adjacent to Fort Carson.

Fort Carson's ACUB initiative is ranked as the number one priority in the Department of the Army (DA) and the number two priority in the DOD. This is due to the uniquely advantageous opportunity on our southern boundary (dealing with only one family of landowners) and the very current and pressing issue of the El Rancho Development on the Installation's eastern boundary.

To date, \$4.92 million has been spent to purchase a conservation easement on approximately 5,000 acres of the Walker Ranches on the southern boundary of Fort Carson.

Partners in Fort Carson's ACUB

efforts include the Colorado Department of Transportation (CDOT), DA, The Nature Conservancy (TNC), the U.S. Fish and Wildlife Service (USFWS) and private landowners.

The ACUB represents a unique, but increasingly popular, conservation management approach because it takes into account internal and external conservation interests, which, in this case, include:

- Fort Carson gains a valuable buffer zone to successfully accomplish its mission to train Soldiers, and the ability to mitigate impacts to protected species by extending management and protection beyond its boundaries.

- Conservation easements on the Walker Ranch secure habitat for protected species under the Federal Endangered Species Act. Specifically, Fort Carson is dedicated to habitat protection for the mountain plover and the black-tailed prairie dog.

- Fort Carson, TNC, USFWS and Colorado Division of Wildlife (CDOW) will realize substantial conservation benefits by cooperatively protecting large tracts contiguous to, or close to, an existing large core area of quality habitat. Fort Carson contains approximately 137,000 acres of managed native plant communities

representative of the Central Short Grass Prairie Eco-region, which includes short grass prairie, pinyon/juniper woodland, riparian communities, canyon systems and other ecological communities.

The overall program entails future acquisition of easements on over 60,000 acres of land adjacent to Fort Carson, as well as lands surrounding the Piñon Canyon Maneuver Site (PCMS).

Smoke/Obscurant Training

The ability to "train as we fight" in a realistic environment on Fort Carson was furthered in July 2005, when the Colorado Department of Public Health and Environment (CDPHE) approved an amendment to its 1998 regulation concerning the use of military smoke and obscurants during training exercises. The amendment removed a three-kilometer buffer zone around the perimeter of the Installation in which no smoke could be generated and removed constraints on the types of smoke allowed.

This significant regulatory change will provide increased training flexibility and more realistic training capability. It will allow Soldiers to make better use of critical training areas, such as drop zones for airborne operations and urban warfare training complexes, and to use better technology, such as synthetic graphite. It also helps minimize delays in training as the amendment allows the combined use of the 373,000 training acres at Fort Carson and the PCMS.

The amendment went into effect Sept. 30, 2005, and does not change the regulatory requirement of no visible emissions crossing the Installation boundary. Fort Carson has operational procedures and controls in place to increase accountability, which places an

emphasis on the proper use of smoke and obscurant to facilitate training while ensuring environmental compliance.

Response measures are in place in the unlikely event smoke drifts toward or crosses the Installation boundary.

Noise Issues

Fort Carson updated its Installation Environmental Noise Management Plan, which provides a method of analyzing noise exposure and safety hazards associated with military operations and presents land use guidelines for achieving compatibility between the Army and surrounding communities.

The Army has an obligation to U.S. citizens to recommend uses of land around its installations that will protect citizens from noise and other

hazards and protect the public's investment in these training facilities. Fort Carson's Noise Program continues to work proactively with El Paso, Fremont and Pueblo Counties' planning commissions and local land developers to resolve any potential encroachment issues.

The noise contours for heavy weapons on Fort Carson are expected to change in the future. There are three reasons for this expected change: (1) development of



new ranges south and southeast of the main impact area, (2) possible changes in the method for assessing the noise of heavy weapons and (3) a planned upgrade to the computer program used by the Army, which will take into account land topography.

Fort Carson will continue to generate noise contours locally. The U.S. Army Center for Health Promotion and Preventive Medicine will also continue to give technical support to the modeling process, which allows for the evaluation of all future modifications of Fort Carson ranges and training scenarios.

Future Goal Initiative:

Continue with efforts to purchase remaining phases of easements on the Walker properties in support of the ACUB initiative.

Goal 12: Advance a sustainable mission and Fort Carson by adopting a SEMS and by imparting (passing on) a personal commitment and enthusiasm for sustainability.

Challenges: * Deployments overseas and the constant turnover of personnel. * Implementing software and technology for a large number of users. * Changing the mindset of military units required to comply with SEMS.



continued ability to remain well postured to train and equip soldiers, develop future leaders, grow Army families and remain a committed community partner now and into the future.

The consideration of economic, social and environmental impacts at the core of sustainability fully supports Fort Carson's vision of providing combat-ready forces for the 21st Century Combat Commander and Joint Team.

EQWG Aspects Identification

The Environmental Quality Working Group (EQWG), comprised of directorate and military unit representatives, is leading the SEMS effort. The group led the aspects and impacts assessment, a required step in implementing a SEMS. The purpose is to identify aspects of activities with the most significant impact on our progress in achieving a sustainable Installation and surrounding community.

Accomplishments:

A Presidential mandate, Executive Order 13148, "Greening the Government Through Leadership in Environmental Management," requires all federal agencies to implement an environmental management system (EMS) by December 31, 2005. Taking advantage of a unique opportunity, Fort Carson is meeting another Federal and DOD initiative known

as sustainability by expanding the EMS process to include the management of sustainability goals and initiatives.

More robust than an EMS, the Sustainability and Environmental Management System (SEMS) goes beyond compliance and supports the environment, economy, personal well-being and society. A SEMS is the strategic planning framework that will support the Installation's

For example, how does the way in which we use water to irrigate our landscape have a significant impact on the regional environment, economy, society and well-being of individual Soldiers and community citizens?

Aspects and Impacts Training

In January of 2005, Fort Carson held a week-long training and workshop session to develop a prioritized list of Fort Carson activity aspects. To do this, the EQWG developed a process model to analyze and rank the aspects and impacts of major activities and operations.

The process identified and prioritized activities that prevent sustainable living and if changed, could mobilize Fort Carson and the community towards sustainability. At the end of the week, stakeholders

decided that the most significant aspects of Fort Carson operation and its achievement of sustainability goals and the mission are: water supply, transportation, land/soil, cost/budget, energy, solid waste, air emissions and hazardous waste.

SEMS and Sustainability Goals

As a result of the First Annual Fort Carson Community Sustainability Conference held in 2002, Fort Carson had sustainability goals before developing its SEMS. The Installation is using the Aspects and Impacts assessment results to prioritize resources for working toward our existing goals.

Future Goal Initiatives:

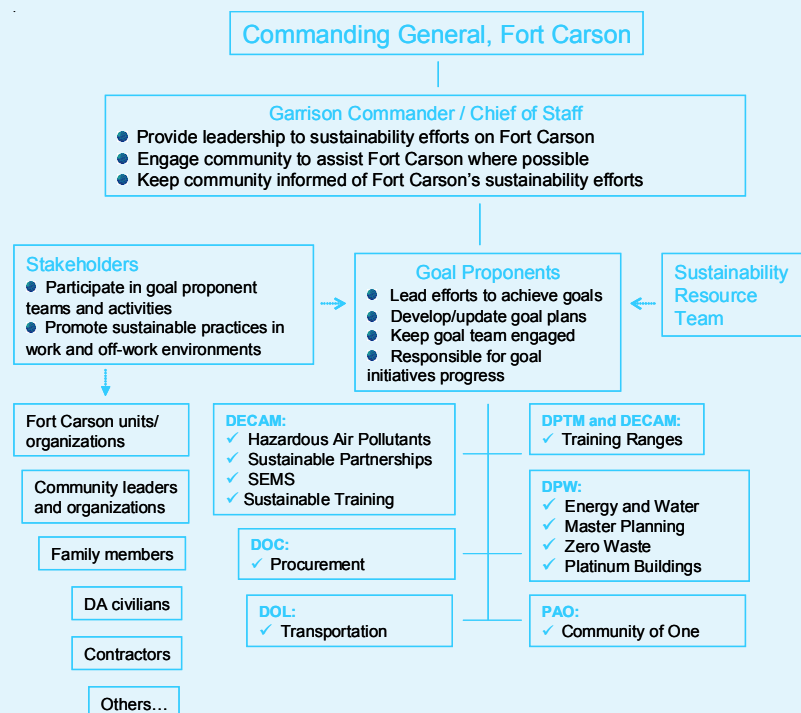
Implement web hosted assessment manager (WHAM) software, a tool for evaluating environmental programs. The WHAM can be used to identify

trends and develop corrective actions to address regulatory violations. The system not only identifies current problems but also allows Fort Carson to store the histories (i.e. unit, building, etc.) in the information database that can be used not only for trends (issues with training, management and other areas) and corrective actions, but also to determine root causes. By determining the root cause of violations, corrective actions to develop long-term, solutions for problem areas can be determined.

Analyze Fort Carson Sustainability Survey results. The survey was recently distributed, on and off post, to get feedback on the 25-year sustainability goals and capture individual, unit and leadership input on sustainability. Results from the survey will help Fort Carson improve its sustainability efforts.

Sustainability Goals: Roles and Responsibilities

Fort Carson assigned internal proponents from directorates, units and activities on the Installation to lead efforts toward the achievement of our 25-year sustainability goals. The wire diagram outlines roles and responsibilities.



Organizational acronyms

DECAM: Directorate of Environmental Compliance and Management
 DOC: Directorate of Contracting
 DPTM: Directorate of Plans, Training and Mobilization
 DPW: Directorate of Public Works
 PAO: Public Affairs Office
 SPPO: Strategic Plans and Projects Office



The Army Strategy for the Environment: "Sustain the Mission – Secure the Future"

The United States Army has long recognized that our mission is only accomplished because America entrusts us with its most precious resources – its sons and daughters. It is our obligation to ensure that our Soldiers today – and the Soldiers of the future – have the land, water and air resources needed to train; a healthy environment in which to live; and the support of local communities and the American people.

The *Army Strategy for the Environment: Sustain the Mission – Secure the Future* establishes a long-range vision that enables the Army to meet its mission today and into the future. Sustainability is the foundation for this Strategy and a paradigm that focuses our thinking to address both present and future

needs while strengthening community partnerships that improve our ability to organize, equip, train and deploy our Soldiers as part of the joint force.

Sustainability connects our activities today to those of tomorrow with sound business and environmental practices. We have learned over the past decades that simply complying with environmental regulations will not ensure that we will be able to sustain our mission. We must strive to become systems thinkers if we are to benefit from the interrelationships of the *triple bottom line* of sustainability: mission, environment and community. To sustain the future Army we must implement effective policies and practices that safeguard the environment and our quality of life in a manner that our nation expects of us.

The Army Strategy for the Environment does not pretend to dictate all the answers. It is only the starting point that commits Army leaders at all levels to certain goals and challenges them to develop innovative methods to achieve those goals. Achieving the vision outlined in this strategy will require a deep commitment from every member of the Army team – every leader, every Soldier, every civilian and every family member. For the Army to be successful on its quest toward sustainability we must all do our part to Sustain the Mission, Secure the Future!

*Peter J. Schoomaker,
General, United States Army
Chief of Staff*

*R.L. Brownlee
Acting Secretary of the Army*



For more information about Fort Carson's Sustainability program, contact the Sustainability Planner at (719) 526-9777 or visit the Fort Carson sustainability website at <http://sems.carson.army.mil>.